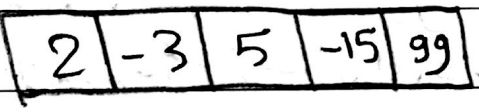


ID[0] = 2;

ID[4] = 99;

OR int ID[5] = {2, -3, 5, -15, 99};

$$\begin{bmatrix} 2 & -3 & 5 & -15 \\ 1 & 2 & 4 & -10 \end{bmatrix}$$

```
int temp[2][4];
temp[0][0] = 2;
temp[1][3] = -10;
```

OR

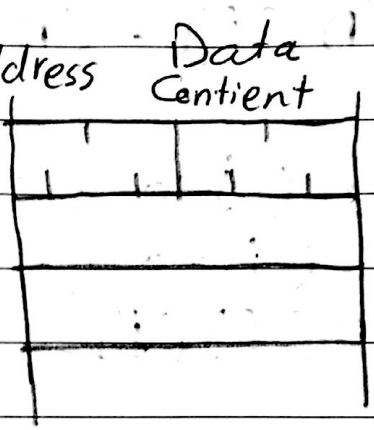
```
int temp[2][4] = {{2, -3, 5, -15}, {1, 2, 4, -10}};
```

Scanned by CamScanner

Date: Subject:

Lec 1 Programming

Arrayes



[n x m]

n ← عدد الصفوف

m ← عدد الأعمدة

ID[i][j]

Byte = 8 bits

binary → Hexadecimal
(2) (16)

int ID[5];

2	-3	5	-15	99

ID[0] = 2;

ID[4] = 99;

OR int ID[5] = {2, -3, 5, -15, 99};

$$\begin{bmatrix} 2 & -3 & 5 & -15 \\ 1 & 2 & 4 & -10 \end{bmatrix}$$

```
int temp[2][4];
temp[0][0] = 2;
temp[1][3] = -10;
```

OR

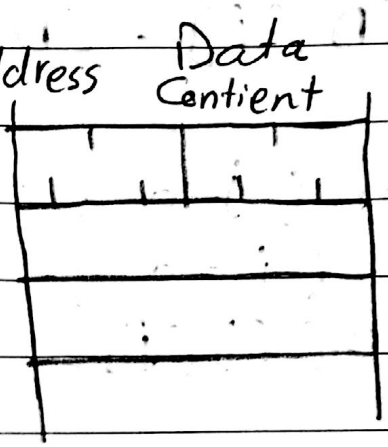
```
int temp[2][4] = {{2, -3, 5, -15}, {1, 2, 4, -10}};
```

Scanned by CamScanner

Date: Subject:

Lec 1 Programming

Arrayes



[n x m]
- n ↓ عدد الصفوف
- m ↳ عدد الأعمدة

ID[i][j]

Byte = 8 bits

binary → Hexadecimal
(2) (16)

int ID[5];

2	-3	5	-15	99

ID[0] = 2;
ID[4] = 99;

OR int ID[5] = {2, -3, 5, -15, 99};

$$\begin{bmatrix} 2 & -3 & 5 & -15 \\ 1 & 2 & 4 & -10 \end{bmatrix}$$

```
int temp[2][4];
temp[0][0] = 2;
!
temp[1][3] = -10;
```

OR

```
int temp[2][4] = {{2,-3,5,-15},{1,2,4,-10}};
```

Scanned by CamScanner

المصفوفات ذات بعد واحد

```
For ( i=0 ; i<=3 ; i++)
      i<4
  ID[i] = ID[i] * 3;
```

المصفوفات ذات بعدين

```
For ( j=0 ;      ; j++)
For ( i=0 ;      ; i++)
  ID[i][j] =     ;
```

Pointers

```
int var1;
Float var2;
int * Var1;
Float * Var2;
```

* للاعلان عن وجود متغير
* للاعلان عن مؤشر يشير الى عنوان متغير آخر

← العنوان دائماً رقم صحيح

```
int * ptr-ver1;
Float * ptr- Ver2;
```

← ptr يحتوي على عنوان المتغير من النوع .....

```
IChar [5] = { t, a, n, ta};
ID [5] = { 2, -3, 5, -15, 99};
```

```
a = * ptr- Var1
```

العنوان ←

```
a = & var1
```

المحتوى ←

Var1		
	2	1020
	-3	1022
	5	1024
	-15	1026
	99	1028

Scanned by CamScanner

Date: Subject: Lec 2

Write a program to enter an array with 2 - dimension using keyboard and print it as Follows:

$$\begin{bmatrix} 2 & 4 & 5 & 6 \\ 0 & 2 & 4 & 5 \\ 3 & 2 & 8 & 0 \end{bmatrix}$$

Algorithm:

1 - Start
2 - Loop 1 i i=0 to n step 1
    Loop j j=0 to m step 1
    input A[i][j]
    End Loop j
    End Loop i
3 - Loop 2 i=0 to n step 1
    Loop 3 j=0 to m step 1
    output A[i][j]
    End Loop 3 j
    End Loop 2 i
4 - End

Scanned by CamScanner

Date: Subject:

```
/* ----
        */
#include <iostream.h>
int main ( )
{
  int A[3][4] ;        → الاعلان عن المصفوفات
  int i, j ;
  Cout << "Enter element of Array\n";
  For ( i = 0 ; i < 3 ; i++)
  For ( j = 0 ; j < 4 ; j++)
  { Cout << "A[" << i << "]" << j <<
    "]=" ;
    Cin >> A[i][j] ;
  }
  Cout << "\n output array matrix " ;
For ( i = 0 ; i < 3 ; i++)
  {
     Cout << "\n" ;
  For ( j = 0 ; j < 4 ; j++)
  Cout << "\t" << A[i][j] ;
  }
return 0 ;
}
```

Scanned by CamScanner

Date: Subject:

Output:

Enter element of Array

A[0][0] = 2
A[0][1] = 4
A[0][2] = 5
A[0][3] = 6
A[1][0] = 0
A[1][1] = 2
A[1][2] = 4
A[1][3] = 5
A[2][0] = 3
A[2][1] = 2
A[2][2] = 8
A[2][3] = 0

output array

int numbers[5] = {4, 6, 2, 7, 3};
int * numbers_ptr ;

		Address	Data
numbers	4	i 1000	7
	6		
	2		
	7	i_ptr 1500	1000
	3		

Scanned by CamScanner

Date: Subject:

numbers [4] ← اسم المصفوفة

4	6	2	7	3

ويعتبر مؤشر ثابت يشير لأول عنصر في المصفوفة

numbers [1]
numbers [0]
number_ptr

Pointer → متغير يشير الى عنوان متغير اخر

Float * i_ptr → int

الاعلان عن متغير اسمه i_ptr يشير الى المتغير i نوعه Float

numbers_ptr +4 → numbers [4]

يشير للعنصر الأخير

⊛ Pointers and Strings

[ ]

Char myCity [6] = "Tanta";

myCity

T	a	n	t	a	\0

← كل حرف ياخد 2 Byte

myCity مصفوفة اسمها يشير الى عنوان أول عنصر

Scanned by CamScanner

Date: Subject:

String input & output

```
Cin.getline (name, size);
```

size: الفعلي + 1 ← علشان يحط /0

Scanned by CamScanner

Date: Subject: Sheet # 1

Q1)

Ⓐ int ivar;
int *ptr = &ivar; ✓
عنوان

= int num[50];

Scanned by CamScanner

Date: Subject:

(Q2) if (& array [4] < & array [ ])
Cout << "true";
else
Cout << "False";

output → False
& array [ ] < & array [ ] لو كانتا
False ... output الـ

(Q3)
a) pint ++; Valid
⇒ pint = pint + 1
b) pint + = X; Valid
pint = pint + X
c) pint /= 2; invalid
d) pint *= 4; in Valid
غير مسموح بالضرب والقسمة

) (pint) + 1 Valid

(Q4) int numbers [5] = {10, 20, 30, 40, 50};
Cout << "the third element in the array is";
Cout << * numbers + 3 << endl;
→ What is the wrong ??
~~* number + 3~~ ← هايروح يجوب العنوان بتاع (0)
* (numbers + 2) الصح

B.E

Scanned by CamScanner

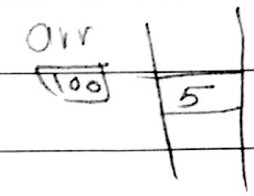
Date: Subject:

* Cout << *arr ++;

① Cout 5 ptr هايطبع محتوى ال

② ++ => arr = arr + 1 = 101

هايزود على العنوان



* Cout << (*arr) ++;

① Cout → 5

② ++ → 6 هايزود على المحتوى

P5 Pint = new int [100];

هايحجز 100 عنصر ويخلي ال Pint مشاور عليها

int Pint [100];

or

int * Pint;

Pint = new int [100];

Cin >> Pint; الخطأ

Cin >> * Pint; الصح

or

Cin >> Pint [0];

P6 ① False

② True

Size of memory = no. of element * no fo bytes each element

③ False

null pointer

Scanned by CamScanner